General

Guideline Title

Diabetes type 1 and type 2 evidence-based nutrition practice guideline.

Bibliographic Source(s)

Academy of Nutrition and Dietetics. Diabetes type 1 and 2 evidence-based nutrition practice guideline. Chicago (IL): Academy of Nutrition and Dietetics; 2015. Various p.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: American Dietetic Association (ADA). Diabetes type 1 and 2 evidence-based nutrition practice guideline for adults. Chicago (IL): American Dietetic Association (ADA); 2008. Various p. [206 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

Ratings for the strength of the recommendations (Strong, Fair, Weak, Consensus, Insufficient Evidence), conclusion grades (I-V), and statement labels (Conditional versus Imperative) are defined at the end of "Major Recommendations" field.

Diabetes Mellitus (DM) Type 1 and 2: Screening and Referral for Medical Nutrition Therapy (MNT)

DM: Screening for Type 2 Diabetes

The registered dietitian nutritionist (RDN), in collaboration with other members of the health care team, should ensure that all overweight or obese adults at risk are screened for type 2 diabetes. Testing to assess risk for future diabetes in asymptomatic people should be considered in adults of any age who are overweight or obese (body mass index [BMI] 25 kg/m^2 or more or 23 kg/m^2 or more in Asian Americans) and who have one or more additional risk factors for diabetes.

Fair, Imperative

DM: Referral for MNT

The RDN, in collaboration with other members of the health care team, should ensure that all adults with type 1 diabetes and type 2 diabetes are referred for MNT. Individuals who have diabetes should receive individualized MNT to achieve treatment goals, preferably provided by a RDN familiar with the components of diabetes MNT.

Strong, Imperative

Recommendation Strength Rationale

- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades A, B, C and E.

DM Type 1 and 2: MNT

DM: Initial Series of MNT Encounters

The RDN should implement three to six MNT encounters during the first six months, and determine if additional MNT encounters are needed. In studies reporting on the implementation of an initial series of RDN encounters (three to 11; total of two to 16 hours), MNT significantly lowered glycosylated hemoglobin (HbA1c) by 0.3% to 2.0% in adults with type 2 diabetes and by 1.0% to 1.9% in adults with type 1 diabetes during the first six months, as well as optimization of medication therapy and improved quality of life.

Strong, Imperative

DM: MNT Follow-Up Encounters

The RDN should implement a minimum of one annual MNT follow-up encounter. Studies longer than six months report that continued MNT encounters resulted in maintenance and continued reductions of A1C for up to two years in adults with type 2 diabetes, and for up to 6.5 years in adults with type 1 diabetes.

Strong, Imperative

Recommendation Strength Rationale

- Conclusion Statements in support of these recommendations were given Grades I and II.
  The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grades A, B and E.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades A, B, C and E.

DM Type 1 and 2: Nutrition Assessment

Nutrition Assessment

The RDN should assess the following in adults with type 1 diabetes and type 2 diabetes, to formulate the nutrition care plan:

- *Biochemical data, medical tests and medication usage*: Type of diabetes; glycemic control (target glucose and A1C levels are noted in the annual American Diabetes Association Standards of Medical Care in Diabetes); lipid profiles; blood pressure; stage of chronic kidney disease; use of glucose- and lipid-lowering medications, anti-hypertensive medications, prescription and other over-the-counter medications, herbal supplements and complementary or alternative medications
- *Nutrition-focused physical findings*: Height, weight, BMI and waist circumference; injection sites; relative importance of weight management
- *Client history*: General health and demographic information; social history; cultural preferences; health literacy and numeracy; education and occupation; knowledge, beliefs, attitudes, motivation, readiness to change, self-efficacy and willingness and ability to make behavioral changes; physical activity; patient or family nutrition-related medical and health history; other medical or surgical treatments; previous nutrition care services and MNT recommendations
- *Food and nutrition-related history*: Food, beverage and nutrient intake including energy intake, serving sizes, meal-snack patterns, carbohydrate, fiber, types and amounts of fat, protein, micronutrient intake and alcohol intake; experience with food, previous and current food and nutrition history, eating environment, access to healthy foods and eating out

Assessment of the patient's psychological and social situation should be included as an ongoing part of the medical management of diabetes, which may include, but are not limited to, attitudes about the illness, expectations for medical management and outcomes, affect and mood, general and diabetes-related quality of life, resources (financial, social and emotional), and psychiatric history, as well as addressing common co-morbid conditions that may complicate diabetes management.

Fair, Imperative

Recommendation Strength Rationale

- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades A, B and E.

DM Type 1 and 2: Individualize Nutrition Prescription

DM: Individualize Nutrition Prescription

The RDN should individualize the nutrition prescription and implement evidence-based guidelines in collaboration with the adult with diabetes. A variety of eating patterns (combinations of different foods or food groups) are acceptable for the management of diabetes. Personal preferences (e.g., tradition, culture, religion, health beliefs and goals, economics) and metabolic goals should be considered when recommending one eating pattern over another. Treatment decisions should be founded on evidence-based guidelines tailored to individual patient preferences, prognoses and co-morbidities.

Fair, Imperative

Recommendation Strength Rationale

- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grade E.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grade B.

DM Type 1 and 2: Energy Intake

DM: Encourage Healthful Eating Plan for Appropriate-Weight Adults with Diabetes

For appropriate-weight adults with diabetes, the RDN should encourage consumption of a healthful eating plan, with a goal of weight maintenance and prevention of weight gain. A variety of eating patterns (combinations of different foods or food groups) are acceptable for the management of diabetes.

Consensus, Conditional

DM: Encourage Reduced Energy Healthful Eating Plan for Overweight or Obese Adults with Diabetes

For overweight or obese adults with diabetes, the RDN should encourage a reduced energy, healthful eating plan, with a goal of weight loss, weight loss maintenance and prevention of weight gain. Studies based on reduced energy interventions reported significant reductions in HbA1c of 0.3% to 2.0% in adults with type 2 diabetes and of 1.0% to 1.9% in adults with type 1 diabetes, as well as optimization of medication therapy and improved quality of life.

Strong, Conditional

Recommendation Strength Rationale

- Conclusion Statements in support of these recommendations were given Grades I and II.
- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grades A and E.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grade A.

DM Type 1 and 2: Macronutrient Composition

DM: Individualize Macronutrient Composition

The RDN, in collaboration with the adult with diabetes, should individualize the macronutrient composition of the healthful eating plan within the appropriate energy intake. Limited research regarding differing amounts of carbohydrate (39% to 57% of energy) and fat (27% to 40% of energy), reported no significant effects on A1C or insulin levels in adults with diabetes, independent of weight loss. Limited research reports mixed results regarding the effects of the amount of protein (ranging from 0.8 g to 2.0 g per kg per day) on fasting glucose levels and A1C.

Fair, Imperative

Recommendation Strength Rationale

- Conclusion Statements in support of these recommendations were given Grades I, III and V.
- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grades B, C and E.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades B and E.

DM Type 1 and 2: Carbohydrate Management Strategies

DM Type 1 and 2: Carbohydrate Management Strategies

The RDN should educate adults with type 1 diabetes or type 2 diabetes on multiple daily injections (MDI) of insulin or insulin pump therapy on carbohydrate counting using insulin-to-carbohydrate ratios based on his or her abilities, preferences and management goals. Research reports that carbohydrate counting using insulin-to-carbohydrate ratios resulted in significant decreases in A1C of 0.4% to 1.6% and significant increases in quality of life, as well as continued maintenance of these improvements for up to 44 months. The majority of research reported no significant change in weight as a result of this carbohydrate management strategy.

Strong, Conditional

DM: Educate Adults with Type 1 or Type 2 Diabetes on Fixed Insulin Doses or Adults with Type 2 Diabetes on Insulin Secretagogues

The RDN should educate adults with type 1 diabetes or type 2 diabetes on fixed insulin doses or adults with type 2 diabetes on insulin secretagogues, based on his or her abilities, preferences and management goals, on carbohydrate consistency (timing and amount) using one of the following carbohydrate management strategies:

- Carbohydrate counting alone
- Plate method, portion control and simplified meal plan
- Food lists (such as *Choose Your Foods*, *Food Lists for Diabetes*) and carbohydrate choices

For individuals using fixed insulin doses (or insulin secretagogues), consistent carbohydrate intake with respect to time and amount can result in improved glycemic control and reduce risk for hypoglycemia. Monitoring carbohydrate intake, whether by carbohydrate counting or experience-based estimation remains a key strategy in achieving glycemic control. A simple diabetes healthful eating plan approach such as portion control or healthful food choices may be better suited to individuals with type 2 diabetes who have low health literacy or numeracy concerns.

Fair, Conditional

DM: Educate Adults with Type 2 Diabetes on MNT Alone or Non-Insulin Secretagogues

The RDN should educate adults with type 2 diabetes on MNT alone or on diabetes medications other than insulin secretagogues, based on his or her abilities, preferences and management goals, on one of the following carbohydrate management strategies:

- Carbohydrate counting alone
- Plate method, portion control and simplified meal plan
- Food lists (such as *Choose Your Foods*, *Food Lists for Diabetes*) and carbohydrate choices

Monitoring carbohydrate intake, whether by carbohydrate counting or experience-based estimation remains a key strategy in achieving glycemic control. A simple diabetes healthful eating plan approach such as portion control or healthful food choices may be better suited to individuals with type 2 diabetes who have low health literacy or numeracy concerns.

Fair, Conditional

Recommendation Strength Rationale

- Conclusion Statements in support of this recommendation were given Grades I and II.
- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grades of A, B and C.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades of A, B, C and E.

DM Type 1 and 2: Fiber Intake

DM: Encourage Fiber Intake

The RDN should encourage adults with diabetes to consume dietary fiber from foods such as fruits, vegetables, whole grains and legumes, at the levels recommended by the Dietary Reference Intakes (DRI) (21 g to 25 g per day for adult women and 30 g to 38 g per day for adult men, depending on age) or U.S. Department of Agriculture (14 g fiber per 1,000 kcal) due to the overall health benefits of dietary fiber. Limited research regarding differing amounts of fiber intake from foods, independent of weight loss, reported mixed results on A1C and no significant effects on exogenous insulin levels.

Fair, Imperative

Recommendation Strength Rationale

- Conclusion Statements in support of this recommendation were given Grade III.

- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grades B and C.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grade B.

DM Type 1 and 2: Glycemic Index and Glycemic Load

DM: Advise on Glycemic Index and Glycemic Load

If glycemic index or glycemic load is proposed as a glycemia-lowering strategy, the RDN can advise adults with diabetes that lowering glycemic index or glycemic load may or may not have a significant effect on glycemic control. Studies longer than 12 weeks report no significant impact of glycemic index or glycemic load, independent of weight loss, on A1C. However, mixed results were reported regarding fasting glucose levels and endogenous insulin levels.

Fair, Conditional

Recommendation Strength Rationale

- Conclusion Statements in support of this recommendation were given Grades II and III.
- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grade C.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grade C.

DM Type 1 and 2: Nutritive Sweeteners

DM: Educate on Substitution of Nutritive Sweeteners for Other Carbohydrates

The RDN should educate adults with diabetes that intake of nutritive sweeteners, when substituted isocalorically for other carbohydrates, will not have a significant effect on A1C or insulin levels. Research reported no significant impact of consuming nutritive sweeteners (such as isomaltulose and sucrose), independent of weight loss, on A1C or insulin levels. However, mixed results were reported regarding fasting blood glucose.

Fair, Imperative

DM: Advise Against Excessive Intake of Nutritive Sweeteners

The RDN should advise adults with diabetes against excessive intake of nutritive sweeteners to avoid displacing nutrient-dense foods and to avoid excessive caloric and carbohydrate intake. Higher intake of added sugars may contribute to higher energy intake.

Fair, Imperative

Recommendation Strength Rationale

- Conclusion Statements in support of this recommendation were given Grades II and III.
- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grades A, B, and C.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades A and B.

DM Type 1 and 2: U.S. Food and Drug Administration (FDA)-Approved Non-nutritive Sweeteners.

DM: Educate on Intake of FDA-Approved Non-nutritive Sweeteners

The RDN should educate adults with diabetes that intake of FDA-approved non-nutritive sweeteners (such as aspartame, sucralose and stevia) within the recommended daily intake levels established by FDA will not have a significant effect on glycemic control. Research reports no significant impact of consuming FDA-approved non-nutritive sweeteners (such as aspartame, stevia [steviol glycosides] and sucralose), independent of weight loss, on A1C, fasting glucose levels or insulin levels.

Weak, Imperative

DM: Educate About Substitution of FDA-Approved Non-nutritive Sweeteners

The RDN should educate adults with diabetes that substituting foods and beverages containing FDA-approved non-nutritive sweeteners within the recommended daily intake levels established by FDA can reduce overall calorie and carbohydrate intake. However, other sources of calories and carbohydrates in these foods and beverages need to be considered. Use of non-nutritive sweeteners has the potential to reduce overall calorie and carbohydrate intake if substituted for caloric sweeteners without compensation by intake of additional calories from other food sources.

Fair, Imperative

Recommendation Strength Rationale

- Conclusion Statements in support of this recommendation were given Grade III.
- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grade B.

DM Type 1 and 2: Protein Intake and Protein Intake for Diabetic Kidney Disease (DKD)

DM: Educate on Protein Intake and Hypoglycemia in Adults with Diabetes

The RDN should educate adults with diabetes that adding protein to meals and snacks does not prevent or assist in the treatment of hypoglycemia. Ingested protein appears to increase insulin response without increasing plasma glucose concentrations; therefore, carbohydrate sources high in protein should not be used to treat or prevent hypoglycemia.

Fair, Imperative

DM: No Protein Restriction for DKD

For adults with diabetes and DKD, the RDN does not need to prescribe a protein restriction. While research reports mixed results regarding the effects of the amount of protein on fasting glucose levels and A1C, independent of weight loss, in adults with type 1 diabetes and type 2 diabetes and DKD, there was no significant impact of protein intake (ranging from 0.7 g to 2.0 g per kg per day) on glomerular filtration rate (GFR).

Strong, Conditional

DM: Type of Protein and DKD

The RDN should advise adults with type 2 diabetes and DKD that the type of protein (vegetable-based vs. animal-based) will not have a significant effect on GFR. However, there may be an effect on fasting glucose levels and proteinuria. While one study reports a positive impact of soy protein compared to animal protein on proteinuria and fasting glucose levels, independent of weight loss, in adults with type 2 diabetes and DKD, there was no significant impact of soy protein consumption on GFR.

Weak, Conditional

Recommendation Strength Rationale

- Conclusion Statements in support of this recommendation were given Grades I, III, and V.
- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grades A, B, and C.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades A and B.

DM Type 1 and 2: Cardioprotective Eating Pattern

DM: Encourage Cardioprotective Eating Pattern

The RDN should encourage consumption of a cardioprotective dietary pattern, within the recommended energy intake. While research reports no significant effect of differing amounts of saturated fat, unsaturated fat and omega-3 fatty acids on glycemia or insulin levels, independent of weight loss, modifications to decrease saturated fat intake and increase unsaturated fat intake reduced total cholesterol and low-density lipoprotein (LDL)-cholesterol in three of six studies.

Strong, Imperative

DM: Encourage Individualized Reduction in Sodium Intake

The RDN should encourage an individualized reduction in sodium intake. The recommendation for the general population to reduce sodium to less than 2,300 mg per day is also appropriate for adults with diabetes; for adults with both diabetes and hypertension, further reduction in sodium intake should be individualized.

Fair, Imperative

Recommendation Strength Rationale

- Evidence Analysis Library (EAL) Conclusion Statements in support of this recommendation were given Grades I and II.
- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grades A, B and C.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades A, B, C and E.

DM Type 1 and 2: Vitamin, Mineral and/or Herbal Supplementation

DM: Advise on Vitamin, Mineral and Herbal Supplementation

If vitamin, mineral and herbal supplementation is proposed as a diabetes management strategy, the RDN can advise adults with diabetes that there is no clear evidence of benefit from supplementation in people who do not have underlying deficiencies. Routine supplementation with antioxidants (such as vitamins E and C and carotene) and other micronutrients (such as chromium, magnesium and vitamin D) and herbal supplements (such as cinnamon) are not advised due to lack of evidence of efficacy and concern related to long-term safety.

Fair, Conditional

Recommendation Strength Rationale

- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grades A, C and E.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades C and E.

DM Type 1 and 2: Alcohol Consumption

DM: Advise and Educate on Alcohol Consumption

The RDN should advise and educate adults with diabetes that if they choose to drink alcohol, they should do so in moderation (one drink per day or less for adult women and two drinks per day or less for adult men). Alcohol consumption may place adults with diabetes at increased risk for delayed hypoglycemia, especially if using insulin or insulin secretagogues.

Weak, Conditional

Recommendation Strength Rationale

- The 2013 American Diabetes Association Nutrition Therapy Recommendations received Grades C and E.
- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades B and C.

DM Type 1 and 2: Physical Activity

DM: Encourage Individualized Physical Activity Plan

The RDN should encourage an individualized physical activity plan for adults with diabetes, unless medically contraindicated, to gradually achieve the following:

- Accumulating 150 minutes or more of physical activity per week
- Moderate-intensity aerobic exercise (50% to 70% of maximum heart rate) spread over at least three days per week with no more than two consecutive days without exercise
- Resistance training at least twice per week
- Reduce sedentary time by breaking up extended amounts of time (more than 90 minutes) spent sitting.

Adults with diabetes should be advised to perform at least 150 minutes per week of moderate-intensity aerobic physical activity (50% to 70% of maximum heart rate), spread over at least three days per week with no more than two consecutive days without exercise.

Strong, Imperative

DM: Educate on Prevention and Treatment of Exercise-Related Hypoglycemia

The RDN should educate adults with diabetes taking insulin or insulin secretagogues that physical activity may cause hypoglycemia if medication doses or carbohydrate consumption is not altered. Individual glycemic response patterns can differ markedly with exercise; therefore, persons with diabetes taking insulin or insulin secretagogues must use glucose monitoring and recognition of glucose patterns to make decisions to exercise safely.

Consensus, Conditional

Recommendation Strength Rationale

- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades A and B.

DM Type 1 and 2: Education on Glucose Monitoring

DM: Education on Glucose Monitoring

The RDN should ensure that adults with type 1 diabetes and type 2 diabetes are educated about glucose monitoring and using data to adjust therapy. When prescribed as part of a broader educational context, results may help guide treatment decisions and self-management.

Fair, Imperative

Recommendation Strength Rationale

- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades A, B, C and E.

DM Type 1 and 2: Coordination of Care

DM: Coordination of Care

The RDN should implement MNT and coordinate care with an interdisciplinary health care team, the adult with diabetes and important others (e.g., family, friends and colleagues). Care systems should support team-based care and community involvement to meet patient needs, ensuring productive interactions between a prepared, proactive practice team and an informed, activated patient.
Strong, Imperative

Recommendation Strength Rationale

- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades A, B and E.

DM Type 1 and 2: Monitor and Evaluate Effectiveness of MNT

DM: Monitor and Evaluate Effectiveness of MNT

The RDN should monitor and evaluate the following in adults with type 1 diabetes and type 2 diabetes, to determine the effectiveness of MNT:

- *Biochemical data, medical tests and medication usage*: Glycemic control (target glucose and A1C levels are noted in the annual American Diabetes Association Standards of Medical Care in Diabetes); results of glucose monitoring; lipid profiles; blood pressure; stage of chronic kidney disease; use of glucose-and lipid-lowering medications, anti-hypertensive medications, prescription and other over-the-counter medications, herbal supplements and complementary or alternative medications
- *Nutrition-focused physical findings*: Height, weight, BMI and waist circumference; injection sites; relative importance of weight management
- *Client history*: Knowledge, beliefs, attitudes, motivation, readiness to change, self-efficacy and willingness and ability to make behavioral changes; physical activity; and other medical or surgical treatments
- *Food and nutrition-related history*: Food, beverage and nutrient intake including energy intake, serving sizes, meal-snack patterns, carbohydrate, fiber, types and amounts of fat, protein, micronutrient intake and alcohol intake; eating environment, access to health foods and eating out

Monitoring and evaluation of the patient's psychological and social situation should be included as an ongoing part of the medical management of diabetes, which may include but are not limited to attitudes about the illness, expectations for medical management and outcomes, affect or mood, general and diabetes-related quality of life, resources (financial, social and emotional) and psychiatric history, as well as addressing common co-morbid conditions that may complicate diabetes management.

Fair, Imperative

Recommendation Strength Rationale

- The 2015 American Diabetes Association Standards of Medical Care in Diabetes received Grades A, B and E.

Definitions

Recommendations are categorized in terms of either *imperative* or *conditional* statements.

- *Imperative* statements are broadly applicable to the target population and do not impose restraints on their pertinence. Imperative recommendations may include terms such as "should" or "may" and do not contain conditional text that would limit their applicability to specified circumstances.

- *Conditional* statements clearly define a specific situation or population. Conditional recommendations are often presented in an if/then format, such that
  if CONDITION then ACTION(S) because REASON(S)

Fulfillment of the condition triggers one or more guideline-specified actions.

Conclusion Grading Table

Strength of Evidence Elements	Grades				
	I **Good/Strong**	**II** **Fair**	**III** **Limited**	**IV** **Expert Opinion Only**	**V** **Grade Not Assignable**
Quality • Scientific rigor/validity • Considers design and execution	Studies of strong design for question Free from design flaws, bias and execution problems	Studies of strong design for question with minor methodological concerns OR Only studies of weaker study design for question	Studies of weak design for answering the question OR Inconclusive findings due to design flaws, bias or execution problems	No studies available Conclusion based on usual practice, expert consensus, clinical experience, opinion, or extrapolation from basic research	No evidence that pertains to question being addressed
Consistency Of findings across studies	Findings generally consistent in direction and size of effect or degree of association, and statistical significance with minor exceptions at most	Inconsistency among results of studies with strong design OR Consistency with minor exceptions across studies of weaker designs	Unexplained inconsistency among results from different studies OR Single study unconfirmed by other studies	Conclusion supported solely by statements of informed nutrition or medical commentators	Not available
Quantity • Number of studies • Number of subjects in studies	One to several good quality studies Large number of subjects studies Studies with negative results having sufficiently large sample size for adequate statistical power	Several studies by independent investigators Doubts about adequacy of sample size to avoid Type I and Type II error	Limited number of studies Low number of subjects studies and/or inadequate sample size within studies	Unsubstantiated by published studies	Relevant studies have not been done
Clinical Impact • Importance of studies outcomes • Magnitude of effect	Studied outcome relates directly to the question Size of effect is clinically meaningful Significant (statistical) difference is large	Some doubt about the statistical or clinical significance of effect	Studies outcome is an intermediate outcome or surrogate for the true outcome of interest OR Size of effect is small or lacks statistical and/or clinical significance	Objective data unavailable	Indicates area for future research
Generalizability	Studied population,	Minor doubts	Serious doubts about	Generalizability limited to	Not

Strength of Evidence Elements	Grades				
To population of interest	I Good/Strong	II Fair	III Limited	IV Expert Opinion Only	V Grade Not Assignable
	intervention and outcomes are free from serious doubts about generalizability	about generalizability	generalizability due to narrow or different study population, intervention or outcomes studied	scope of experience	available

Adapted by the Academy of Nutrition and Dietetics (AND) from: Greer N, Mosser G, Logan G, Wagstrom Halaas G. A practical approach to evidence grading. Jt Comm. J Qual Improv. 2000; 26:700-712.

Criteria for Recommendation Rating

Statement Rating	Definition	Implication for Practice
Strong	A Strong recommendation means that the workgroup believes that the benefits of the recommended approach clearly exceed the harms (or that the harms clearly exceed the benefits in the case of a strong negative recommendation), and that the quality of the supporting evidence is excellent/good (grade I or II). In some clearly identified circumstances, strong recommendations may be made based on lesser evidence when high-quality evidence is impossible to obtain and the anticipated benefits strongly outweigh the harms.	Practitioners should follow a Strong recommendation unless a clear and compelling rationale for an alternative approach is present.
Fair	A Fair recommendation means that the workgroup believes that the benefits exceed the harms (or that the harms clearly exceed the benefits in the case of a negative recommendation), but the quality of evidence is not as strong (grade II or III). In some clearly identified circumstances, recommendations may be made based on lesser evidence when high-quality evidence is impossible to obtain and the anticipated benefits outweigh the harms.	Practitioners should generally follow a Fair recommendation but remain alert to new information and be sensitive to patient preferences.
Weak	A Weak recommendation means that the quality of evidence that exists is suspect or that well-done studies (grade I, II, or III) show little clear advantage to one approach versus another.	Practitioners should be cautious in deciding whether to follow a recommendation classified as Weak, and should exercise judgment and be alert to emerging publications that report evidence. Patient preference should have a substantial influencing role.
Consensus	A Consensus recommendation means that Expert opinion (grade IV) supports the guideline recommendation even though the available scientific evidence did not present consistent results, or controlled trials were lacking.	Practitioners should be flexible in deciding whether to follow a recommendation classified Consensus, although they may set boundaries on alternatives. Patient preference should have a substantial influencing role.
Insufficient Evidence	An Insufficient Evidence recommendation means that there is both a lack of pertinent evidence (grade V) and/or an unclear balance between benefits and harms.	Practitioners should feel little constraint in deciding whether to follow a recommendation labeled as Insufficient Evidence and should exercise judgment and be alert to emerging publications that report evidence that clarifies the balance of benefit versus harm. Patient preference should have a substantial influencing role.

Adapted by the Academy of Nutrition and Dietetics (AND) from the American Academy of Pediatrics, Classifying Recommendations for Clinical Practice Guideline, Pediatrics. 2004;114;874-877. Revised by the AND Evidence-Based Practice Committee, Feb 2006.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Type 1 and type 2 diabetes mellitus (DM)

Guideline Category

Counseling

Evaluation

Management

Prevention

Risk Assessment

Screening

Treatment

Clinical Specialty

Endocrinology

Family Practice

Internal Medicine

Nutrition

Preventive Medicine

Intended Users

Advanced Practice Nurses

Dietitians

Health Care Providers

Nurses

Pharmacists

Physician Assistants

Physicians

Students

Guideline Objective(s)

Overall Objective

To provide evidence-based recommendations on medical nutrition therapy (MNT) for adults with type 1 and type 2 diabetes

Specific Objectives

- To define evidence-based diabetes nutrition recommendations for registered dietitian nutritionists (RDNs) that are carried out in collaboration with other health care providers
- To guide practice decisions that integrate medical, nutritional, and behavioral strategies
- To reduce variations in practice among RDNs
- To provide the RDN with evidence-based practice recommendations to adjust MNT or recommend other therapies to achieve positive outcomes
- To develop guidelines for interventions that have measurable clinical outcomes
- To promote optimal nutrition support within the cost constraints of the healthcare environment

Target Population

- Adults (19 to 80 years and older) with type 1 or type 2 diabetes mellitus (DM) (*management and treatment*)
- Asymptomatic obese or overweight adults (body mass index [BMI] 25 kg/m^2 or more or 23 kg/m^2 or more in Asian Americans) who have one or more additional risk factors for diabetes (*screening only*)

Interventions and Practices Considered

1. Screening and referral
    - Screening for type 2 diabetes in asymptomatic overweight or obese adults
    - Referral of all adults with type 1 diabetes and type 2 diabetes for medical nutrition therapy (MNT)
    - Implementation of initial series of MNT encounters
    - Implementation of MNT follow-up encounters
2. Nutrition assessment
    - Assessment of the following to formulate the nutrition care plan: biochemical data, medical tests and medication usage, nutrition-focused physical findings, client history, food and nutrition-related history
    - Assessment of the patient's psychological and social situation
3. Nutrition interventions
    - Formulating individualized nutrition plan
    - Healthful eating plans for appropriate-weight adults with diabetes and reduced-energy healthful eating plans for overweight or obese adults with diabetes
    - Formulating individualized macronutrient composition of the healthful eating plan within the appropriate energy intake
    - Education on carbohydrate management strategies
    - Encouraging fiber intake
    - Advising on glycemic index and glycemic load
    - Education on use of nutritive and non-nutritive sweeteners
    - Education on protein intake and hypoglycemia
    - Advising that no protein restriction is needed for diabetic kidney disease (DKD)
    - Advising on type of protein (vegetable-based versus animal-based) and DKD
    - Encouraging a cardioprotective eating pattern
    - Encouraging individualized reduction in sodium intake
    - Advising on vitamin, mineral and herbal supplementation
    - Providing advice and education on alcohol consumption
    - Encouraging individualized physical activity plan
    - Education on prevention and treatment of exercise-related hypoglycemia
    - Education on glucose monitoring
    - Coordination of care with an interdisciplinary health care team
4. Nutrition monitoring and evaluation: monitoring and evaluating effectiveness of medical nutrition therapy

Major Outcomes Considered

- Glycemia (hemoglobin A1C or glucose)
- Medication usage (insulin or other glucose-lowering medications)

- Cardiovascular disease risk factors (lipids or blood pressure)
- Quality of life
- Weight management (pounds, waist circumference or body mass index)

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

General Methods for Collecting/Selecting the Evidence

The following list provides an overview of the steps which the Academy evidence analysis team goes through to identify research through database searches.

1. Plan the search strategy to identify the current best evidence relevant to the question. The plan for identification and inclusion of articles and reports should be systematic and reproducible, not haphazard. Write out the original search strategy and document adjustments to the strategy if they occur. Allow for several iterations of searches.
    - List inclusion and exclusion criteria. The workgroup will define the inclusion and exclusion criteria. These criteria will be used in defining the search strategy and for filtering the identified research reports. The Academy uses only peer-reviewed research; that is, articles accepted for evidence analysis must be peer-reviewed and published in a juried publication. Additionally, the Academy only uses human subjects in its research and does not include animal studies in its evidence analysis.
    - Identify search words. During the process of considering outcomes, interventions, nutrition diagnoses, and assessments, the workgroup may have identified a number of specific terms or factors that were important, but were not included in the actual question. These terms can be used as additional search terms to help identify relevant pieces of research. Both text word search and keyword search using Medical Subject Headings (MeSH) definitions may be used.
    - Identify databases to search. PubMed, Medline, CINAHL, EMBASE, Cochrane, Agricola, DARE, TRIP, AHRQ and ERIC are some common databases for clinical nutritional research. Note that search terms can vary depending on the database.
2. Conduct the search. Depending on the number and type of sources found in the initial search, adjustments might have to be made in the search strategy and to inclusion/exclusion criteria, and additional searches run. Changes to the search plan should be recorded for future reference. Document the number of sources identified in each search.
3. Review titles and abstracts. At this point, a filtering procedure is used to determine whether a research article matches the inclusion criteria and is relevant to the workgroup's questions. Typically, the lead analyst, along with a member of the expert workgroup, first reviews the citations and abstracts to filter out reports that are not applicable to the question. If a determination cannot be made based on the citation and abstract, then the full text of the article is obtained for review.
4. Gather all remaining articles and reports. Obtain paper or electronic copies of research articles that remain on the list following the citation and abstract review. If there are less than six citations, it could mean that the search was too specific to identify relevant research or that research has not been done on this topic. A broadened search should be tried. When there is a long list of citations, ascertain whether it includes articles that are tangential to the question or address the question in only a general way. In this case a more focused search strategy may be necessary.

Specific Methods for This Guideline

The recommendations in the guideline were based on a systematic review of the literature. Searches of PubMed were performed on the following topics:

- Medical nutrition therapy (MNT)
- Carbohydrates (carbohydrate amount, carbohydrate management, fiber, glycemic index, nutritive and non-nutritive sweeteners)

- Fat (fat amount, types of fat, omega-3 fatty acids)
- Protein (protein amount, types of protein [vegetable-based vs. animal-based])

Each evidence analysis topic has a link to supporting evidence, where the Search Plan and Results can be found. Here, the reader can view when the search plan was performed, inclusion and exclusion criteria, search terms, databases that were searched and the excluded articles.

Number of Source Documents

The number of supporting documents for the guideline topics is below:

- Recommendations: 19
- Conclusion statements: 40
- Evidence summaries: 38
- Article worksheets: 169

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Conclusion Grading Table

Strength of Evidence Elements	Grades				
	I Good/Strong	**II Fair**	**III Limited**	**IV Expert Opinion Only**	**V Grade Not Assignable**
Quality • Scientific rigor/validity • Considers design and execution	Studies of strong design for question Free from design flaws, bias and execution problems	Studies of strong design for question with minor methodological concerns OR Only studies of weaker study design for question	Studies of weak design for answering the question OR Inconclusive findings due to design flaws, bias or execution problems	No studies available Conclusion based on usual practice, expert consensus, clinical experience, opinion, or extrapolation from basic research	No evidence that pertains to question being addressed
Consistency Of findings across studies	Findings generally consistent in direction and size of effect or degree of association, and statistical significance with minor exceptions at most	Inconsistency among results of studies with strong design OR Consistency with minor exceptions across studies of weaker designs	Unexplained inconsistency among results from different studies OR Single study unconfirmed by other studies	Conclusion supported solely by statements of informed nutrition or medical commentators	Not available
Quantity • Number of	One to several good quality studies	Several studies by independent	Limited number of studies	Unsubstantiated by published studies	Relevant studies have not been

Strength of Evidence Elements	I Good/Strong	II Fair	III Limited	IV Expert Opinion Only	V Grade Not Assignable
• Number of subjects in studies	Large number of subjects studies Studies with negative results having sufficiently large sample size for adequate statistical power	investigators Doubts about adequacy of sample size to avoid Type I and Type II error	Low number of subjects studies and/or inadequate sample size within studies		done
Clinical Impact • Importance of studies outcomes • Magnitude of effect	Studied outcome relates directly to the question Size of effect is clinically meaningful Significant (statistical) difference is large	Some doubt about the statistical or clinical significance of effect	Studies outcome is an intermediate outcome or surrogate for the true outcome of interest OR Size of effect is small or lacks statistical and/or clinical significance	Objective data unavailable	Indicates area for future research
Generalizability To population of interest	Studied population, intervention and outcomes are free from serious doubts about generalizability	Minor doubts about generalizability	Serious doubts about generalizability due to narrow or different study population, intervention or outcomes studied	Generalizability limited to scope of experience	Not available

Adapted by the Academy of Nutrition and Dietetics (AND) from: Greer N, Mosser G, Logan G, Wagstrom Halaas G. A practical approach to evidence grading. Jt Comm. J Qual Improv. 2000; 26:700-12.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Step 1: Formulate the Evidence Analysis Question

Specify a focused question in a defined area of practice. Three key items are used to generate good quality questions: an analytical framework to identify links between factors and outcomes; the PICO (population, intervention, comparison intervention, outcome) format to write questions; and the Nutrition Care Process to serve as a framework.

Step 2: Gather and Classify the Evidence

This step involves developing a search plan to conduct a detailed literature search. The search plan clearly defines the inclusion and exclusion criteria and identifies the key search terms and outcomes necessary to conduct a comprehensive search. The search plan and all literature searches results are documented and assessed for inclusion eligibility.

Step 3: Critically Appraise Each Article (Risk of Bias)

This step involves critically assessing each included article for methodologic quality. Each study is evaluated based on appropriateness of study design and the quality of how the study was conducted by using the Academy's risk of bias tool called the Quality Criteria Checklist (QCC).

Step 4: Summarize the Evidence

This step involves achieving two major tasks. First, key data from the included articles is extracted by using the Academy's Web-based data extraction template. Second, summarizing the evidence extracted from each study into a brief, coherent, and easy-to-read summary. The end result of this phase is called the Evidence Summary.

Step 5: Write and Grade the Conclusion Statement

This step includes developing a concise conclusion statement for the research question and assigning a grade to the conclusion statement. The grade reflects the overall strength and weakness of evidence in forming the conclusion statement. The grading scale used by the Academy is: Grade I (good/strong), II (fair), III (limited/weak), IV (expert opinion only), or V (not assignable) (see the "Rating Scheme for the Strength of the Evidence" field).

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Development of Evidence-Based Nutrition Practice Guidelines

The expert workgroup, which includes practitioners and researches with a depth of experience in the specific field of interest, develops the disease-specific guideline. The guideline development involved the following steps:

1. Review the conclusion statements: The workgroup meets to review the materials resulting from the evidence analysis, which may include conclusion statements, evidence summaries, and evidence worksheets.
2. Formulate recommendations for the guideline integrating conclusions from evidence analysis: The workgroup uses an expert consensus method to formulate the guideline recommendations and complete the various sections on the recommendation page. These include:
    - Recommendation(s): This is a course of action for the practitioner. The recommendation is written using two brief and separate statements. The first statement is "what" the dietitian should do or not do. The second statement describes the "why" of the recommendation. More than one recommendation may be formulated depending on a particular topic and the supporting conclusion statements.

        Rating: The rating for the recommendation is based on the strength of the supporting evidence. The grade of the supporting conclusion statement(s) will be help determining this rating (see the "Rating Scheme for the Strength of the Recommendations" field).

        Label of conditional or imperative: Each recommendation will have a label of "conditional" or "imperative." Conditional statements clearly define a specific situation, while imperative statements are broadly applicable to the target population without restraints on their pertinence.

        Risks and harms of implementing the recommendations: Includes any potential risks, anticipated harms or adverse consequences associated with applying the recommendation(s) to the target population.

        Conditions of application: Includes any organizational barriers or changes that would need to be made within an organization to apply the recommendation in daily practice. Also includes any conditions which may limit the application of the recommendation(s). For instance, application may be limited to only people in an inpatient setting, or not applicable for pregnant women. Facilitators for the application of the guideline may also be listed here. Conditional recommendations will always have conditions specified. Imperative recommendations may have some general conditions for application.

        Potential costs associated with application: Includes any costs that may be associated with the application of this recommendation such as specialized staff, new equipment or treatments.

        Recommendation narrative: Provides a brief description of the evidence that supports this recommendation.

        Recommendation strength rationale: Provides a brief list of the evidence strength and methodological issues that determined the recommendation strength.

        Minority opinions: If the expert workgroup cannot reach consensus on the recommendation, the minority opinions may be listed here.

        Supporting evidence: Provides links to the conclusions statements, evidence summaries and worksheets related to the formulation of this recommendation(s).
3. References not graded in the Academy's evidence analysis process: Recommendations are based on the summarized evidence from the analysis. Sources that are not analyzed during the evidence analysis process may be used to support and formulate the recommendation or to support information under other categories on the recommendation page, if the workgroup deems necessary. References must be credible resources (e.g., consensus reports, other guidelines, position papers, standards of practice, articles from peer-reviewed journals, nationally recognized documents or Web sites). If recommendations are based solely on these types of references, they will be rated as "consensus." Occasionally recommendations will include references that were not reviewed during the evidence analysis process but are

relevant to the recommendation, risks and harms of implementing the recommendation, conditions of application, or potential costs associated with application. These references will be listed on the recommendation page under "References Not Graded in the Academy's Evidence Analysis Process."

4. Develop a clinical algorithm for the guideline: The workgroup develops a clinical algorithm based on Academy's Nutrition Care Process, to display how each recommendation can be used within the treatment process and how they relate to the Nutrition Assessment, Diagnosis, Intervention and Monitoring and Evaluation.
5. Complete the writing of the guideline: Each disease-specific guideline has a similar format which incorporates the Introduction (includes: Scope of the Guideline, Statement of Intent, Guideline Methods, Implementation, Benefits and Risks/Harms of Implementation), Background Information and any necessary Appendices. The workgroup develops these features.
6. Criteria used in guideline development: The criteria used in determining the format and process for development of Academy's guidelines are based on the following tools and criteria for evidence-based guidelines:
    - Guideline Elements Model (GEM), which has been incorporated by the American Society for Testing and Materials (ASTM) as a Standard Specification for clinical practice guidelines.
    - Appraisal for Guidelines Research and Evaluation (AGREE) Instrument
    - National Guideline Clearinghouse (NGC)www.guideline.gov.

Rating Scheme for the Strength of the Recommendations

Conditional versus Imperative Recommendations

Recommendations are categorized in terms of either *imperative* or *conditional* statements.

- *Imperative* statements are broadly applicable to the target population and do not impose restraints on their pertinence. Imperative recommendations may include terms such as "should" or "may" and do not contain conditional text that would limit their applicability to specified circumstances.
- *Conditional* statements clearly define a specific situation or population. Conditional recommendations are often presented in an if/then format, such that
  if CONDITION then ACTION(S) because REASON(S)

Fulfillment of the condition triggers one or more guideline-specified actions.

Criteria for Recommendation Rating

Statement Rating	Definition	Implication for Practice
Strong	A Strong recommendation means that the workgroup believes that the benefits of the recommended approach clearly exceed the harms (or that the harms clearly exceed the benefits in the case of a strong negative recommendation), and that the quality of the supporting evidence is excellent/good (grade I or II). In some clearly identified circumstances, strong recommendations may be made based on lesser evidence when high-quality evidence is impossible to obtain and the anticipated benefits strongly outweigh the harms.	Practitioners should follow a Strong recommendation unless a clear and compelling rationale for an alternative approach is present.
Fair	A Fair recommendation means that the workgroup believes that the benefits exceed the harms (or that the harms clearly exceed the benefits in the case of a negative recommendation), but the quality of evidence is not as strong (grade II or III). In some clearly identified circumstances, recommendations may be made based on lesser evidence when high-quality evidence is impossible to obtain and the anticipated benefits outweigh the harms.	Practitioners should generally follow a Fair recommendation but remain alert to new information and be sensitive to patient preferences.
Weak	A Weak recommendation means that the quality of evidence that exists is suspect or that well-done studies (grade I, II, or III) show little clear advantage to one approach versus another.	Practitioners should be cautious in deciding whether to follow a recommendation classified as Weak, and should exercise judgment and be alert to emerging publications that report evidence. Patient preference should have a substantial influencing role.

Statement Rating	Definition	Implication for Practice
Consensus	A Consensus recommendation means that Expert opinion (grade IV) supports the guideline recommendation even though the available scientific evidence did not present consistent results, or controlled trials were lacking.	Practitioners should be flexible in deciding whether to follow a recommendation classified Consensus, although they may set boundaries on alternatives. Patient preference should have a substantial influencing role.
Insufficient Evidence	An Insufficient Evidence recommendation means that there is both a lack of pertinent evidence (grade V) and/or an unclear balance between benefits and harms.	Practitioners should feel little constraint in deciding whether to follow a recommendation labeled as Insufficient Evidence and should exercise judgment and be alert to emerging publications that report evidence that clarifies the balance of benefit versus harm. Patient preference should have a substantial influencing role.

Adapted by the American Dietetic Association from the American Academy of Pediatrics, Classifying Recommendations for Clinical Practice Guideline, Pediatrics. 2004;114;874-7. Revised by the AND Evidence-Based Practice Committee, Feb 2006.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Each guideline is reviewed internally and externally using the Appraisal for Guidelines Research and Evaluation (AGREE) instrument as the evaluation tool. The external reviewers consist of an interdisciplinary group of individuals (may include dietitians, doctors, psychologists, nurses, etc.). The guideline is adjusted by consensus of the expert panel and approved by Academy's Evidence-Based Practice Committee prior to publication on the Evidence Analysis Library (EAL).

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

The guideline contains conclusion statements that are supported by evidence summaries and evidence worksheets. These resources summarize the important studies (randomized controlled trials [RCTs], clinical studies, observational studies, cohort and case-control studies) pertaining to the conclusion statement and provide the study details.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

When using these recommendations, please consider the following general benefits:

- A primary goal of implementing these recommendations includes improving a person's ability to achieve optimal nutrition through healthful food choices and physically active lifestyle.

- Although costs of medical nutrition therapy (MNT) sessions and reimbursement vary, MNT is essential for improved outcomes.
- MNT education can be considered cost effective when considering the benefits of nutrition interventions on the onset and progression of comorbidities versus the cost of the intervention.

Potential Harms

Overall Risk/Harm Considerations

When using these recommendations, in light of potential risks and harms, consider the following:

- Patient's age, socio-economic status, cultural issues, psychosocial and mental health status, health history and other individual and health conditions.
- Use clinical judgment in applying the guidelines.

Recommendation-Specific Risks/Harms

Carbohydrate Management Strategies

Hypoglycemia, hyperglycemia or weight gain may result if the registered dietitian nutritionist (RDN) does not select or the adults with diabetes cannot implement the appropriate carbohydrate management strategy.

Physical Activity

Intense physical activity in some overweight and obese individuals may contribute to disability or death; thus, consultation with a physician prior to beginning an exercise program should be recommended.

Qualifying Statements

Qualifying Statements

- This nutrition practice guideline is meant to serve as a general framework for handling clients with particular health problems. The independent skill and judgment of the health care provider must always dictate treatment decisions.
- This guideline is intended for use by registered dietitian nutritionists (RDNs) involved in providing medical nutrition therapy (MNT) for adults with type 1 and type 2 diabetes. The application of the guideline must be individualized to assist the RDN to successfully integrate MNT into the overall medical management of adults with type 1 and type 2 diabetes.
- Evidence-based nutrition practice guidelines are developed to help registered dietitians, practitioners, patients, families, and consumers make shared decisions about health care choices in specific clinical circumstances. If properly developed, communicated, and implemented, guidelines can improve care.
- While the evidence-based nutrition practice guideline represents a statement of promising practice based on the latest available evidence at the time of publication, the guideline is not intended to overrule professional judgment. Rather, it may be viewed as a relative constraint on individual clinician discretion in a particular clinical circumstance. The independent skill and judgment of the health care provider must always dictate treatment decisions. These nutrition practice guidelines are provided with the express understanding that they do not establish or specify particular standards of care, whether legal, medical or other.
- This guideline recognizes the role of patient and family preferences for possible outcomes of care, when the appropriateness of a clinical intervention involves a substantial element of personal choice or values. With regard to types of evidence that are associated with particular outcomes, two major classes have been described. Patient-oriented evidence that matters (POEM) deals with outcomes of importance to patients, such as changes in morbidity, mortality, or quality of life. Disease-oriented evidence (DOE) deals with surrogate end-points, such as changes in laboratory values or other measures of response. Although the results of DOE sometimes parallel the results of POEM, they do not always correspond. When possible, the Academy of Nutrition and Dietetics (AND) recommends using POEM-type evidence rather than DOE. When DOE is the only guidance available, the guideline indicates that key clinical recommendations lack the support of outcomes evidence.

Implementation of the Guideline

Description of Implementation Strategy

The publication of this guideline is an integral part of the plans for getting the Academy medical nutrition therapy (MNT) evidence-based recommendations on medical nutrition therapy for type 1 and type 2 diabetes to all dietetics practitioners engaged in, teaching about or researching the topic. National implementation workshops at various sites around the country and during the Academy Food Nutrition Conference & Expo (FNCE) are planned. Additionally, there are recommended dissemination and adoption strategies for local use of the *Academy of Nutrition and Dietetics Diabetes Type 1 and 2 (2015) Evidence-Based Nutrition Practice Guideline*.

The guideline development team recommended multi-faceted strategies to disseminate the guideline and encourage its implementation. Management support and learning through social influence are likely to be effective in implementing guidelines in dietetic practice. However, additional interventions may be needed to achieve real change in practice routines.

Implementation of the guideline will be achieved by announcement at professional events, presentations and training. Some strategies include:

- National and local events: State dietetic association meetings and media coverage will help promote the guideline.
- Local feedback adaptation: Presentation by members of the workgroup at peer review meetings and opportunities for continuing education unites (CEUs) for courses completed.
- Education initiatives: The guideline and supplementary resources will be freely available for use in the education and training of dietetic interns and students in approved Commission on Accreditation of Dietetics Education (CADE) programs.
- Champions: Local champions have been identified and expert members of the guideline team will prepare articles for publications. Resources are provided that include PowerPoint presentations, full guidelines, and pre-prepared case studies.
- Practical tools: Some of the tools that will be developed to help implement the guideline include specially designed resources such as clinical algorithms, slide presentations, training and toolkits.

Specific distribution strategies include:

Publication in full: The guideline is available electronically at the AND Evidence Analysis Library Web site and has been announced to all Academy Dietetic Practice Groups. The Academy Evidence Analysis Library will also provide downloadable supporting information and links to relevant position papers.

Implementation Tools

Quick Reference Guides/Physician Guides

Slide Presentation

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Academy of Nutrition and Dietetics. Diabetes type 1 and 2 evidence-based nutrition practice guideline. Chicago (IL): Academy of Nutrition and Dietetics; 2015. Various p.

Adaptation

The guideline includes some adapted recommendations from the following:

- American Diabetes Association. Standards of medical care in diabetes - 2015. Diabetes Care 2015;38(1):S1-S94.
- Evert AB, Boucher JL, Cypress M, Dunbar SA, Franz MJ, Mayer-Davis EJ, Neumiller JJ, Nwankwo R, Verdi CL, Urbanski P, Yancy Jr WS. Nutrition therapy recommendations for the management of adults with diabetes. Diabetes Care. 2013; 36:3, 821-3, 841.

Date Released

2015

Guideline Developer(s)

Academy of Nutrition and Dietetics - Professional Association

Source(s) of Funding

Academy of Nutrition and Dietetics (AND)

Guideline Committee

Diabetes Type 1 and 2 Evidence-Based Nutrition Practice Guideline Workgroup

Composition of Group That Authored the Guideline

Workgroup Members: Marion Franz, MS, RD, LD, CDE (*Chair*); Catherine Brown, MS, RD, LDN, CDE; Alison Evert, MS, RD, CDE; Janice MacLeod, MA, RD, CDE; Adam Reppert, MS, RD, CDE; Megan Robinson, MS, RD, LD, CDE; Deepa Handu, PhD, RD (resigned)

Financial Disclosures/Conflicts of Interest

In the interest of full disclosure, the Academy has adopted the policy of revealing relationships workgroup members have with companies that sell products or services that are relevant to this topic. Workgroup members are required to disclose potential conflicts of interest by completing the Academy Conflict of Interest Form. It should not be assumed that these financial interests will have an adverse impact on the content, but they are noted here to fully inform readers.

- Alison Evert - received an honorarium for serving on Editorial Board of Journal of American Diabetes Association
- Janice MacLeod - employed at Johnson & Johnson Diabetes Care

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: American Dietetic Association (ADA). Diabetes type 1 and 2 evidence-based nutrition practice guideline for adults. Chicago (IL): American Dietetic Association (ADA); 2008. Various p. [206 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Available to members from the Academy of Nutrition and Dietetics (AND) Web site .

Availability of Companion Documents

The following are available:

- Diabetes type 1 and type 2 evidence-based nutrition practice guideline. Executive summary of recommendations. Chicago (IL): Academy of Nutrition and Dietetics; 2015. Available from the Academy of Nutrition and Dietetics (AND) Web site .
- Diabetes type 1 and type 2 evidence-based nutrition practice guideline. PowerPoint presentation. Chicago (IL): Academy of Nutrition and Dietetics; 2013. 56 p. Available for purchase from the eatrightStore Web site .
- EAL educator module on diabetes 1 and 2. Chicago (IL): Academy of Nutrition and Dietetics. Available for purchase from the eatrightStore Web site .
- Evidence analysis manual: research and strategic business development. Steps in the Academy evidence analysis process. Chicago (IL): Academy of Nutrition and Dietetics; 2012 Aug. 112 p. Available from the AND Web site .
- Handu D, Moloney L, Wolfram T, Ziegler P, Acosta A, Steiber A. Academy of Nutrition and Dietetics methodology for conducting systematic reviews for the Evidence Analysis Library. J Acad Nutr Dietet. 2016 Feb;116(2):311-8. Available from the AND Web site .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI on April 29, 2003. The information was verified by the guideline developer on August 6, 2003. This summary was updated by ECRI Institute on November 5, 2008. The updated information was verified by the guideline developer on December 9, 2008. This summary was updated by ECRI Institute on August 3, 2016.

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